



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/666,790

09/17/2003

Hisashi Tsukamoto

Q137-US8

9005

31815 7590 06/09/2008

MARY ELIZABETH BUSH
QUALLION LLC
P.O. BOX 923127
SYLMAR, CA 91392-3127

EXAMINER

LEE, CYNTHIA K

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

06/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/666,790 | Applicant(s) TSUKAMOTO ET AL. | |
| | Examiner CYNTHIA LEE | Art Unit 1795 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 55 and 66-88 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 55 and 66-88 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/19/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

This Office Action is responsive to the amendment filed on 3/19/2008. Claims 55 and 66-88 are pending. Applicant's arguments have been considered and are not persuasive. Claims 55 and 66-71, and 85-88 are finally rejected for reasons stated herein below based on the IDS submitted on 3/19/2008.

Information Disclosure Statement

The Information Disclosure Statement (IDS) filed 3/19/2008 has been placed in the application file and the information referred to therein has been considered.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on April 11, 2007.

Claims 55,66-71,85,87,88 are rejected under 35 U.S.C. 103(a) as being obvious over Gartstein et al. (US 2002/0001745 A1) in view of MacLachlan (US 4638555).

With respect to claim 55, Gartstein et al. teach an electrical storage battery comprising an case (14) sealed by a first end cap (16) and a second end cap (22), wherein neither the case, the first end cap nor the second end cap has fill hole as shown in Figure 3. The battery further comprises an electrically conductive terminal pin (26) extending to the first end cap, which is electrically insulated from the case. The cathode (32) of the electrode assembly is in electrical communication with the pin, whereas the anode (34) of the electrode assembly is in electrical communication with

Art Unit: 1795

second end cap via a conductive bottom plate (19) (flexible conductive tab). See paragraphs 55-59,62.

Gartstein et al. discloses an electrically conductive terminal but do not teach the electrically conductive terminal pin extending through the first end cap. MacLachlan teaches an electrically conductive terminal pin extending through battery lid (see 15 in fig. 1). It would have been obvious to one of ordinary skill in the art to extend the terminal pin through the end cap of the battery of Gartstein, as taught by MacLachlan, for the benefit of extracting the current of the battery directly from the current collector instead of through the positive terminal.

With respect to claims 66,68, Gartstein et al. the conductive bottom plate extends from a location adjacent to the case to a second location wherein the plate is electrically connected to the second end cap (22). See Figure 3.

With respect to claim 67, Gartstein et al. teach welds (contacts between the anode and the conductive bottom plate) connect the plate to the second end cap. See Figure 3.

With respect to claim 69, Gartstein et al. teach the second end cap is connected to the plate for a distance that is not longer than the radius shown in the second end cap. See Figure 3.

With respect to claims 70,71, Gartstein et al. teach the electrode assembly has a spirally wound jelly roll structure, which include at least one separator separating the electrodes. See Paragraph 57.

With respect to claim 85, Gartstein et al. teach at least one weld connects the cathode to the pin. See Figure 3.

With respect to claim 87, Gartstein et al. teach the terminal pin is hermetically sealed to the insulting washer or seal (24), which insulates the first end cap. See Paragraph 55.

With respect to claim 88, Gartstein et al. teach the case is electrically conductive. See Paragraph 62.

Claims 55, 70, 72, 73, 77, 80, 81, 83, 84 are rejected under 35 U.S.C. 103(a) as being obvious over McHenry (US 3510353) in view of Gartstein (US 2002/0001745) and MacLachlan (US 4638555).

Refer to the Figure of McHenry. McHenry discloses a method of constructing an electric storage battery, comprising connecting a first end of a first electrode strip(17) to a pin (14); positioning a mandrel (tube 12 and the plastic tubing 13) on the pin; winding the first electrode strip together with a second electrode strip so as to form a spiral roll having at least a portion of the pin within the spiral roll, the spiral roll being formed after positioning the mandrel on the pin (2:31-36). The electrodes are rolled around the pin and the mandrel (2:35-36). An electrode 19 electrically insulated from the pin 16.

McHenry discloses an electrically conductive terminal but do not teach the electrically conductive terminal pin extending through the first end cap (Applicant's claim 55). MacLachlan teaches an electrically conductive terminal pin extending through battery lid (see 15 in fig. 1). It would have been obvious to one of ordinary skill in the art

Art Unit: 1795

to extend the terminal pin through the end cap of the battery of McHenry, as taught by MacLachlan, for the benefit of extracting the current of the battery directly from the current collector instead of through the positive terminal.

McHenry does not disclose a second end cap and a flexible conductive tab providing electrical communication between the second end cap and the electrode that is electrically insulated from the pin (Applicant's claim 55). Gartstein discloses a second end cap that is a second terminal 18 in fig. 3. The second end cap is connected to the electrode 34 via a conductive bottom plate 19. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute Gartstein's conductive bottom plate 19 and the endcap 18 for McHenry's connect an electrode to a bottom end cap, as taught by Gartstein, for the benefit of forming the terminal only on the bottom of the battery, and not the entire casing.

Claims 74 are rejected under 35 U.S.C. 103(a) as being obvious over McHenry (US 3510353) in view of Gartstein (US 2002/0001745) and MacLachlan (US 4638555) as applied to claim 72, further in view of Nemoto (US 6387561).

McHenry modified by Gartstein and MacLachlan discloses all the elements of claim 72 and are incorporated herein. McHenry modified by Gartstein and MacLachlan does not disclose that the mandrel includes a channel and injecting an electrolyte through the channel. Nemoto teaches that the electrolyte is injected through the hole 7 of the core 6. It would have been obvious to one of ordinary skill in the art at the time

Art Unit: 1795

the invention was made to inject the electrolyte of McHenry through a hole through the core of the battery, as taught by Nemoto, for the benefit of distributing the electrolyte from the center. Distributing the electrolyte from the center of the battery would allow for even distribution of the electrolyte in a cylindrical can

Claim 79 is rejected under 35 U.S.C. 103(a) as being obvious over McHenry (US 3510353) in view of Gartstein (US 2002/0001745) and MacLachlan (US 4638555) as applied to claim 72, further in view of Spillman (US 5631102).

McHenry modified by Gartstein and MacLachlan discloses all the elements of claim 72 and are incorporated herein. McHenry modified by Gartstein and MacLachlan does not disclose that the mandrel includes titanium. Spillman teaches a terminal pin comprising titanium (6:12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the mandrel of McHenry of titanium, as taught by Spillman, since it has been held by the court that the selection of a known material based on its suitability for its intended use is *prima facie* obvious. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

Claim 82 is rejected under 35 U.S.C. 103(a) as being obvious over McHenry (US 3510353) in view of Gartstein (US 2002/0001745) and MacLachlan (US 4638555) as applied to claim 55, further in view of Klein (US 4476624).

McHenry modified by Gartstein and MacLachlan discloses all the elements of claim 72 and are incorporated herein. McHenry modified by Gartstein and MacLachlan does not disclose that the mandrel has a c-shaped cross-section. Klein teaches a novel mandrel comprised of an elongated longitudinally deformed metal strip and a compression element adapted to fit within the deformity of the metal strip. Preferably the metal strip is of a uniform enclosing configuration such as of a "U" or "C" shaped cross section and the compression element is preferably a solid plastic rod (applicant's claim 27 and 83). During the construction of the cell an electrode such as lithium with separator elements on both sides thereof is placed within the deformity with the compression element compressing and fixedly positioning the electrode into the deformity of the mandrel. The compression element is then locked into position such as by crimping the mandrel therearound to positively hold the electrode in place during subsequent winding (applicant's claim 67). With an anode metal electrode such as of lithium, a percut opening in the separator element adjacent the mandrel permits contact and cold welding between the anode metal and the mandrel during the compression step. Refer to 1:65-2:5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute McHenry's pin and mandrel with Klein's pin and mandrel with a c-shape, as taught by Klein (1:36-37), for the benefit of tightly gripping the electrode during the winding of the battery

Claim 86 is rejected under 35 U.S.C. 103(a) as being obvious over Gartstein et al. (US 2002/0001745 A1) in view of MacLachlan (US 4638555) as applied to claim 55, further in view of Taylor (US 6090503).

Gartstein modified by MacLachlan teaches all the elements of claim 55. Gartstein modified by MacLachlan does not teach that the pin includes an alloy of PtIr. Taylor teaches that a battery terminal is made of PtIr (3:30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the pin of Gartstein modified by MacLachlan with PtIr, as taught by Taylor, because it has been held by the court that the selection of a known material based on its suitability for its intended use is *prima facie* obvious. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

Double Patenting

Claims 55, 66-88 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 43-45,67-86 of copending Application No. 10/665,687. Claims 55,66-88 of the instant application is anticipated by copending application claims 43-45,67-86 in that claims 43-45,67-86 of the copending application contains all the limitations of claim of the instant application. Claims 55,67-88 of the instant application therefore is not patently distinct from the copending claim and as such is unpatentable for obvious-type double patenting.

Applicant's argument with respect to the restriction requirement is not persuasive. The Restriction requirement indicated by the Examiner as being withdrawn

pertains to the Restriction requirement dated 11/30/2006 of the instant application, and not referring to the parent application.

Applicant's arguments that the application 10/665,687 dominates the instant application is unpersuasive because the application 10/665,687 anticipates the claims of the instant invention.

Allowable Subject Matter

Claims 75, 76, 78 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Prior art does not disclose nor suggest "wherein a portion of the electrode in electrical communication with the pin is positioned between the mandrel and the pin" (claim 75). Prior art does not disclose nor suggest "wherein the electrode in electrical communication with the pin includes active material positioned on a substrate, the substrate being positioned between the mandrel and the pin without the active material being positioned between the mandrel and the pin" (claim 76). McHenry does not disclose that the electrode is positioned between the mandrel and the pin. Klein does not teach that the electrode is in electrical communication with the pin because the pin is formed of a plastic.

Prior art does not disclose nor suggest "wherein a weld attaches the mandrel to the pin" (claim 78). The mandrel and pin of McHenry are not welded because the pin is made of metal and the mandrel 13 is a plastic sleeve. The mandrel and pin of McHenry

are not welded because the mandrel is the anode terminal and the pin is formed of plastic.

Response to Arguments

Applicant's arguments filed 3/19/2008 have been fully considered but they are not persuasive.

Applicant argues that the pin extending through Gartstein's end cap does not result in the pin being electrically insulated from the case.

The Examiner remains unpersuaded. The insulating washer or seal 24 insulates the conductive top cap 16 from the cell 30. Refer to [0055].

Conclusion

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 3/19/2008 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 1795

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CKI

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795